QUALITY IMPROVEMENT TECHNIQUES IN AN AUDIO ENCODER

ABSTRACT

An audio encoder implements multi-channel coding decision, band truncation, multi-channel rematrixing, and header reduction techniques to improve quality and coding efficiency. In the multi-channel coding decision technique, the audio encoder dynamically selects between joint and independent coding of a multi-channel audio signal via an open-loop decision based upon (a) energy separation between the coding channels, and (b) the disparity between excitation patterns of the separate input channels. In the band truncation technique, the audio encoder performs open-loop band truncation at a cut-off frequency based on a target perceptual quality measure. In multi-channel rematrixing technique, the audio encoder suppresses certain coefficients of a difference channel by scaling according to a scale factor, which is based on current average levels of perceptual quality, current rate control buffer fullness, coding mode, and the amount of channel separation in the source. In the header reduction technique, the audio encoder selectively modifies the quantization step size of zeroed quantization bands so as to encode in fewer frame header bits.